

LTC 0440



Security Systems

EN | Installation Manual
Digital Color Cameras

FR | Manuel d'installation
Caméra Numérique
Couleur

DE | Installationsanleitung
Digitale Farbkamera

ES | Manual de instalación
Cámara Digital de Color

NL | Installatiehandleiding
Digitale Kleurencamera

IT | Manuale d'installazione
Videocamera Digitale a Colori

PT | Manual de Instruções
Câmara Digital Colorida

ZH | 安裝手冊
數字彩色攝像機

BOSCH

SAFETY PRECAUTIONS



DANGER

The lightning flash with arrowhead symbol, within an equilateral triangle, is intended to alert the user to the presence of uninsulated "dangerous voltage" within the product's enclosure that may be of sufficient magnitude to constitute a risk to persons.



WARNING

The exclamation point, within an equilateral triangle, is intended to alert the user to the presence of important operating and maintenance accompanying the appliance.



CAUTION

To reduce the risk of electric shock, do not remove cover (or back). No user - servicable parts inside. Refer servicing to qualified service personnel.

Important Safeguards

1. Keep these instructions.
2. Heed all Warnings.
3. Follow all instructions.
4. Do not use the apparatus near water.
5. Clean with a dry cloth only.
6. Do not install near heat sources such as radiators, heat registers, stoves, or other apparatus that generates heat (including amplifiers).

7. Do not defeat the purpose of a polarized or grounded mains plug. A polarized plug has dissimilar prongs (one wider than the other) to ensure correct polarity, while a grounded plug has an additional 'ground' prong provided for your safety. If the plug supplied with the apparatus does not fit into your outlet, consult an electrician for advice.
8. Protect the power-supply cord from being walked on or pinched, particularly close to plugs, receptacles and the point where it exits from the apparatus.
9. Only use attachments and accessories (including stands, tripods, mounting brackets and housings) specified or recommended by the manufacturer.
10. Unplug the apparatus during lightning storms and when unused for extended periods.
11. Do not attempt to service this unit yourself as opening or removing covers may expose you to dangerous voltage or other hazards. Refer all servicing to qualified service personnel.
12. Servicing is required when the apparatus does not function in the normal way, has been dropped, if liquid has been spilled on it, or if it has been exposed to rain or water. Unplug the unit from the outlet and refer servicing to qualified service personnel.
13. An all-pole mains switch with contact separation of at least 3 mm in each pole shall be incorporated in the electrical installation of the building.

**WARNING**

To reduce the risk of fire or electric shock, do not expose this apparatus to rain or moisture.

FCC INFORMATION



CAUTION

Any changes or modifications to construction of this device that are not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Re-orient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

SPECIFICATIONS

	LTC 0440/x0 High resolution	
Standard	PAL	NTSC
Active pixels (H x V)	752 x 582	768 x 494
Imager	1/3" interline CCD	
Resolution	480 TV lines	
Minimum illumination	<0.4 lux (30 IRE)	
Signal-to-noise ratio	> 50 dB	
Video output	1 Vpp, 75Ω	
Synchronization	Internal or Line-Lock (selectable)	
Shutter	Auto / Flickerless / Off (selectable) PAL: 1/50 - 1/125000 - NTSC: 1/60 - 1/150000	
AGC	On (0-21 dB)/ Off (0 dB) (selectable)	
BLC	On / Off (selectable)	
ATW	Auto 2500 to 9000 K (with 'Hold' mode)	
Lens mount	C and CS compatible	
ALC	Video-iris or DC-iris (auto detect)	
Power supply	LTC 0440/10 & /20: 12 to 28 VAC or 11 to 36 VDC LTC 0440/50 & /60: 100 to 230 VAC	
Power consumption	<4 W	
Dimensions (HxWxL)	58 x 66 x 122 mm (2.28 x 2.6 x 4.8 inch without lens)	
Weight	450 g (0.99 lbs) (without lens)	
Camera mount	Two 1/4" 20 UNC - isolated (bottom) and non-isolated (top)	
Operating temperature	-20°C to +50°C (-4°F to +122°F)	
Controls	On-screen display (OSD) with softkey controls	

Type number overview

Low voltage		High voltage	
PAL (Europe)	NTSC (USA)	PAL (Europe)	NTSC (USA)
LTC 0440/10	LTC 0440/20	LTC 0440/50	LTC 0440/60

UNPACKING

Unpack carefully and handle the equipment with care. The packaging contains:

- Camera
- CCD protection cap
- Spare lens connector (male)
- These Instructions

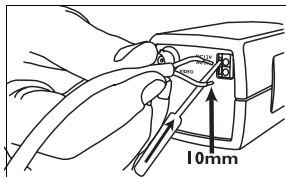
Note:

If equipment appears to have been damaged during shipment, repack it in the original packaging and notify the shipping agent or supplier.

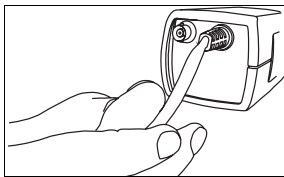
CONNECTION

Power

LTC 0440/10 and /20

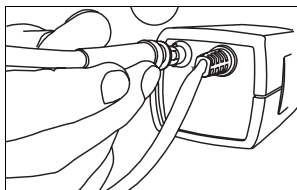
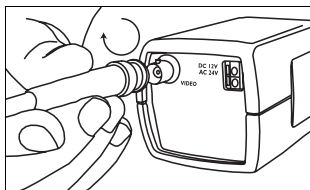


LTC 0440/50 and /60

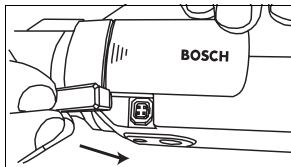
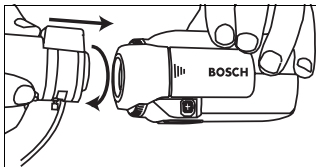


To open the quick-connect, push in on the tabs. Connections are not polarity sensitive. Use stranded or solid wire AWG16 to AWG22, cut back 10mm (0.4") of insulation.

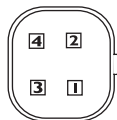
Composite Video



LENS MOUNTING



Pin	Video iris lens	DC iris lens
1	Supply (11 V, 50 mA max.)	Damp-
2	Not used	Damp+
3	Video signal 1 Vpp, 1 kΩ	Drive+
4	Ground	Drive-



- Video-iris and DC-iris lenses are recommended for the best picture performance.
- The camera automatically detects the type of lens used, and optimizes performance accordingly.
- A spare male lens connector is provided if required.

**CAUTION**

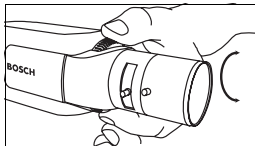
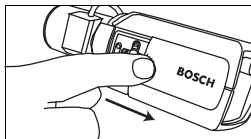
- To avoid damaging the CCD sensor when using a C-mount lens, turn the 'green' back-focus ring counter clockwise until it stops ('Back focus adjustment') before mounting the lens.
- Lenses weighing more than 0.5 kg (1.1lbs) must be separately supported.

Note:

If a short circuit is detected on the lens connector, the on-screen display (OSD) failure message 'LENS SHORT CIRCUIT' is shown. The lens circuit is automatically disabled to avoid internal damage. Remove the lens connector and check the pin connections.

Back focus adjustment

- Camera accepts both C and CS-mount lenses.
1. Unlock the back focus locking button.
 2. Turn the back focus adjustment as required. (See Note 1).
 3. Lock the back focus locking button.

**Notes:**

1. To optimize picture sharpness in both bright and low-level lighting, it is recommended to adjust the back focus when carrying out the set-up procedure. The camera's unique 'Lens Wizard' allows focusing at maximum lens opening to ensure that the object of interest always remains in focus.

2. When back focusing vari-focus lenses, it must be possible to obtain a sharp picture in both wide-angle and tele positions, and for both far and near focus.
3. When back focusing zoom lenses, ensure the object of interest remains in focus throughout the entire zoom range of the lens. (See Advanced Set up).

**CAUTION**

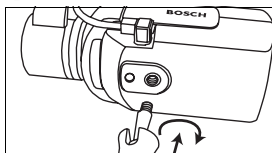
Do not point the camera/lens into direct sunlight. When viewing an outdoor scene, a video- or DC-iris lens is recommended.

MOUNTING THE CAMERA

The camera can be mounted from the top or bottom.

Note:

The **BOTTOM** mounting is isolated from ground.

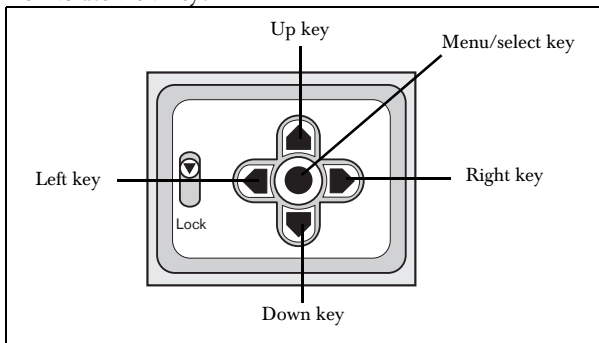


ADVANCED SET-UP

The camera will normally give an optimal picture without the need for further adjustments. However for special circumstances advanced set up options are available.

Hints for menu navigation

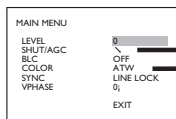
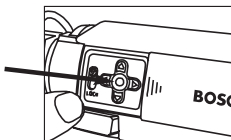
How to use the 5 keys



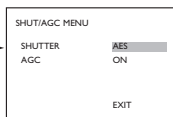
- Press the menu/select key to access the menus or to move to the next or previous menu.
- Press the menu/select key for approximately 1.5 seconds to open the **Installer** menu.
- Use the up or down keys to scroll up or down through a menu.
- Use the left or right keys to move through options or to set parameters.
- When in a menu, quickly pressing the menu/select key twice restores the selected item to its factory default.
- To close all menus at once from any menu, select the **Exit** item and hold down the menu/select key until the menu display disappears.

Menu Navigation

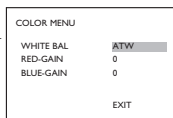
Press the menu button



Main Menu

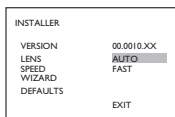
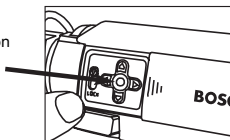


Shutter/AGC Menu

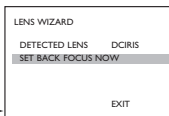


Color Menu

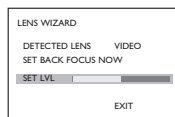
Press the menu button for more than 5sec.



Installer Menu



Lens Wizard Menus



Main menu

Function	Selection	Description
LEVEL	-15 - 0 - +15	Adjusts video level.
SHUT/AGC	Select next menu	Shutter / Automatic Gain Control menu.
BLC	ON OFF	When 'ON', the level is optimized at the center of the screen. Parts outside the center may be under- or over-exposed (this is normal).
COLOR	ATW ATB HOLD Select next menu	Select to access the color menu. (See Color menu for detailed explanation).
SYNC	LINE LOCK INTERNAL	Select 'LINE LOCK' to synchronize with the power supply frequency. Select 'INTERNAL' for use with internal synchronization (automatically selected with DC supply).
V PHASE	0-358°	Adjusts the vertical phase offset (when in 'LINE LOCK' mode).
EXIT		Exit the menu.

Shutter/AGC menu

Function	Selection	Description
SHUTTER	AES	(AES) Auto-shutter sets the optimum shutter speed FL for manual iris lenses. (FL) Flickerless mode avoids OFF interference from light sources (recommended for use with video-iris or DC-iris lenses only).
AGC	ON/OFF	Automatic gain control
EXIT		Exit the menu.

Color Menu

Function	Selection	Description
WHITE BAL	ATW AWB HOLD	ATW: Auto tracking white balance allows the camera to automatically adjust for optimal color reproduction. AWB HOLD: Puts the ATW on hold and preserves the color settings.
RED- GAIN*	-5 - 0 - +5	Offset factory white point alignment (reducing red introduces more cyan).
BLUE- GAIN*	-5 - 0 - +5	Offset factory white point alignment (reducing blue introduces more yellow).
EXIT		Exit the menu.

*Note:

For special scene conditions only, it will be necessary to change the white point offsets.

Accessing installer menu

- To access the installer menu, press and hold the menu/select key for five seconds.

Installer menu

Function	Selection	Description
VERSION		Read-only firmware release number (for service purposes).
LENS	AUTO	Automatically detect lens type. A different lens type can be selected.
SPEED	FAST	Selects the response time of DC-iris lenses. Some lenses require slow lens control to avoid overshoots.
WIZARD		Access the lens wizard menu.
DEFAULTS		Select next menu Return all set-up settings to factory defaults.
EXIT		Exit the menu.

Lens wizard menu

Function	Description
SET BACK FOCUS NOW	Back focus the lens (see 'Back focus adjustment'). The scene is focused at maximum lens opening to ensure that the object of interest remains in focus in bright and low-light conditions.
SET LVL	When a Video-iris lens is detected, a level potentiometer is displayed to obtain the best picture performance. The lens wizard includes a level detector meter that must be set to the center using the potentiometer for best results.
EXIT	Exit the menu.

Adjustment procedure DC-iris Lens:

1. Unlock the back focus locking button.
2. Access the "Lens Wizard" menu.
3. The "SET BACK FOCUS NOW" option is highlighted in the menu.
4. Turn the back focus adjustment as required.
5. Lock the back focus locking button.
6. Exit the menu.

Adjustment procedure Manual-iris Lens:

1. Unlock the back focus locking button.
2. Adjust the lens to the maximum lens opening.
3. Turn the back focus adjustment as required.
4. Lock the back focus locking button.

Adjustment procedure Video-iris Lens:

1. Unlock the back focus locking button.
2. Access the "Lens Wizard" menu.
3. The "SET BACK FOCUS NOW" option is highlighted in the menu.
4. Turn the back focus adjustment as required.
5. Select the "SET LVL" option in the menu, and the LEVEL bar appears.
6. Adjust the level potentiometer located on the lens until the LEVEL bar is in the central position.
7. Lock the back focus locking button.
8. Exit the menu.

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